



## *Certification Boulevard*

### *Test Your Knowledge of Water Treatment ... And Other Miscellaneous Topics*

*(submitted by: Ronald S. Karpa – certified operator)*

1. A water plant has a ground storage reservoir that is 100 feet in diameter and fills to its maximum operating depth of 25 feet in 6 hours ... what is the average flow rate entering the tank in gpm?
  - A. 650 gpm
  - B. 3,125 gpm
  - C. 4,078 gpm
  - D. 4,546 gpm
  
2. Given the following data, what is the total lbs/day of chlorine consumption in this water plant?
  - Raw water flow rate is 2,550 gpm
  - Inlet treatment is 3.5 mg/L
  - Pre-filtration is 1.75 mg/L
  - Finished water disinfection is 2.75 mg/L
  - A. 2,245 lbs/day
  - B. 245 lbs/day
  - C. 145 lbs/day
  - D. 1,145 lbs/day
  
3. The finished water product temperature after thermal treatment is 15 °C, what is the conversion to °F?
  - A. 59 °F
  - B. 68 °F
  - C. -5 °F
  - D. 72 °F
  
4. Given the following data, what is the total daily backwash volume in this effluent filter?

*Filter Data:*

  - Hydraulic inflow of 1,500 gpm
  - Operational loading rate of 3 gpm/ft<sup>2</sup>
  - Backwash rate of 25 gpm/ft<sup>2</sup>
  - Two (2) backwash cycles per day
  - A. 345,600 gpd backwash
  - B. 3.15% of Q
  - C. 1,800 gpd backwash
  - D. 1.16% of Q

*(submitted by: Ken Martin – certified operator at Lake Correctional Institution)*

5. Which water quality indicator reduces the effectiveness of copper sulfate as an algaecide when treating source waters for taste and odor caused by algae?
- A. Total suspended solids
  - B. Temperature
  - C. Alkalinity
  - D. pH
6. What is created when chlorine reacts with volatile organics?
- A. Ammonia
  - B. Trihalomethane
  - C. Alkalinity
  - D. Trimethylamine
7. Which type of solids are not typically removed with standard water filtration?
- A. Dissolved
  - B. Suspended
  - C. Settleable
  - D. Total

*(submitted by: Ken Martin – certified operator at Lake Correctional Institution)*

8. Given the following data, and considering a 10% increase in the flow rate, and an increased chlorine consumption of 34%, calculate the new lbs/day consumption and dosage of chlorine in this water plant.

*Plant Data:*

- The plant flow rate is 1,388 gpm
  - Chlorine consumption is 50 lbs/day
- A. 55 lbs/day and 3.0 ppm
  - B. 50 lbs/day and 4.0 ppm
  - C. 75 lbs/day and 3.25 ppm
  - D. 67 lbs/day and 3.6 ppm
9. Which two chemicals are typically used in a water system chlor-ammonation process?
- A. Chlorine and Sulfur Dioxide
  - B. Ammonia and Sodium Hydroxide
  - C. Chlorine and Caustic
  - D. Chlorine and Ammonia

10. What is another term for non-volatile?

- A. Dissolved
- B. Soluble
- C. Organic
- D. Inorganic

*Please forward your comments and sample questions for publication to:*

**Roy Pelletier, Assistant Bureau Chief  
City of Orlando Public Works Department  
Wastewater Bureau  
5100 L.B. McLeod Road  
Orlando, Florida 32811**

[roy.pelletier@cityoforlando.net](mailto:roy.pelletier@cityoforlando.net) (407) 246-2213